

## HEP SEMINAR



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### Current and Future Collider Probes of Axion-Like Particles

I will show that the study of rare Higgs decays in the high-luminosity run of the LHC can probe axion-like particles (ALPs) in a wide range of parameter space, which is otherwise inaccessible to experimental searches. If the ALP decays predominantly into photons, our strategy covers the current “gap” in the mass range between 1 MeV and 60 GeV down to a photon-axion coupling as small as  $10^{-6}/\text{TeV}$ . An ALP in this parameter range can explain the anomalous magnetic moment of the muon and is consistent with electroweak precision tests. In our analysis we consider the most general effective Lagrangian for a spin-0 particle protected by a shift symmetry, motivated by many extensions of the Standard Model with a spontaneously broken global symmetry.

Date:	Monday 16 December
Time:	11am
Venue:	L1, Seminar Room 107, 10 College Walk, Clayton

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